COMPUTERWORLD

THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

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IBM Ups Card Order Charges $10

PRINCETON, N.J. – IBM has upped its order charge on punched cards by $10, bringing it to $45 as of May 1st.

In addition the base price of cards has been increased by 2%, from 89 cents to 91 cents per thousand, and the charge for additional delivery destinations from $10 to $15.

The price changes came as a result of recent evaluations, the company said.

They denied that there was any relationship between the moves and the expected announcement of IBMs new policy in charging for its data processing services which is due in the next few weeks.

The effect of the new charges will be noted particularly by users who only order small amounts of cards at a time.

A customer who ordered a million cards to be sent to four different destinations would be charged an additional $25, as well as the 2.2% increase on the cards, making his total effective increase 4.5%.

Datamation Chief Dies-Landon Takes Positions

CHICAGO Frank D. Thompson, founder and board chairman of F.D. Thompson Publications, died here last week of a gastrointestinal hemorrhage

He was 61 years old, and is survived by his mother, Mrs. Sara Thompson, and one sister as well as by his wife, Jean, and daughter, Charlotte.

F.D. Thompson publishes *Datamation*, the leading computer monthly, as well as *Research/Development* for the engineering and scientific area

The company was formed in 1950 after Frank Thompson left Sutton Publishing Co. Inc where he was a vice-president

He had been with Sutton since it was formed in 1941

Landon Succeeds

Gardner F. Landon, president of F.D. Thompson Publications, was later elected by the board of directors to the chairman of the board and chief executive officer posts which were left vacant on Frank Thompson's death.

A company spokesman said that publishing activities would continue undaturbed.

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New Anti-Trust Suit Asks IBM To Give $3.5 Billion to Users

PRINCETON, N.J. – Continuing its policy of regarding programs as the equivalent of hardware, Applied Data Research has filed antitrust suits against IBM totaling $903,837,000 in damages for ADR, and at least $3,574,447,728 to be set aside by IBM for rebates to their other users.

ADR considers that free software has been, in fact, a tie-in sale in direct violation of the 1956 Consent Decree which forbade such tie-in sales.

Dick Jones, president of ADR, has been pressing for separate pricing for some time. The firm markets the software program Autoflow, which is perhaps the most successful system yet marketed, and has a patent on a sorting program developed by ADR Vice-President Martin Goetz.

After the suit was filed, an IBM spokesman told *Computerworld* that they had no direct comment to make as they had not yet seen the complaint, but that the corporation denied any anti-trust violations

The new suit is the third such suit against IBM since last December. Other suits were entered by Control Data Corp. and Data Processing Financial & General, but in neither of these cases was any request made for IBM to set aside a rebate fund for users not directly involved in the litigation.

ACM Reveals Financial Crisis to Its Members

NEW YORK – ACM members were told last week for the first time of its financial crisis by Bernard A. Galler, ACM president. Writing in the *Communications* he said that drastic action must be taken to effect the very large change in projected income and expense of the association. As a result, the society is cutting publications other than the *Communications* which are being sent to members.

Galler feels that setting up new guidelines for the society's benefits, and increasing membership will hopefully be advantageous to ACM's situation.

Galler is asking for membership renewals, and is soliciting the support of members to encourage other professionals to join ACM.

In his letter to ACM members Galler said, "By doing this you would not only be helping them in their professional integest, but you would also be making a real contribution toward ACM's financial position and ultimate goals."

"Membership dues now constitute about half the income of the association," said Galler, "and income from other sources is not coming up to expectations in this fiscal year. This fact only became evident early in this calendar year."

"There were occasional warning signs that our expenses might be rising too fast, but there didn't appear to be a crisis," he stated.

The signs Galler referred to presumably included a statement by ACM treasurer Walter Hoffman (CW Sept. 18) in which Hoffman accused the council and its predecessors of "financial irresponsibility."

That statement clarified the worsening financial situation of ACM long before January of this year.

A calculation by the chairman of the finance committee, Bruce Gilchrist, (CW Sept. 18) established that the bank balance at the end of the 1968 fiscal year-last June was inadequate to meet the liabilities of the society.

In September it was reported that ACM's total assets of $310,000 fell about $70,000 short of known liabilities. At that time the 1969-1970 budgets provided for increasing the society's assets by $95,000 and $45,000 respectively. However,

(Continued on Page 4)

Damages For DP Bugs Eyed In Minnesota

ST PAUL, Minn. The Minnesota legislature is considering bills that would sanction damage suits on behalf of persons who suffer injuries because of automatic data processing of their records.

Spokesmen for computer manufacturers and users have objected to the legislation which, in effect, would shift the burden of proof in such cases from the plaintiff to the defendant.

Senate File 413, sponsored by Sen. William B. Dosland provides simply that

"Whoever is injured in person or property as a result of an error made by a computer or as a result of the keeping of records by automatic data processing has a right of action against any person maintaining or utilizing such computer or automatic data processing equipment which proximately caused the injury for all damages sustained and shall, if not contributorily negligent, recover therefor unless the person who caused the injury establishes that he was not negligent. All suits for damages under this section shall be by civil action in any court having jurisdiction thereof."

A nearly-identical companion bill, sponsored by Rep. Douglas Sillers is awaiting action in the house judiciary committee.

Dosland told a senate judiciary subcommittee, which held the first hearing on the bill April 16, that it is not unusual for mistakes to occur when billing is done by a computer.

A bill that already has been paid "cranks out of that awesome machine" again, he said, and after a while the company tells credit raters that you are a "deadbeat."

"It happens every day," Dosland said. "It happened to me." He added that he personally did not suffer.

John Robertson, a lawyer representing Control Data Corp., objected that the bill is premature, its wording could be far-reaching, and it is unfair to single out the computer industry.

In the only two court actions brought against companies that keep records by automatic data processing methods, he said, the plaintiffs won both. Plaintiffs in such cases do not appear to need more help, he said.

In one of those cases, Sen. Kelton Gage, a member of the judiciary subcommittee considering the bill, won a $480,811 award in U.S. Distrct Court in St Paul. Three wholesale supply houses, subsidiaries of F.B. Clements & Co., had sued Service Bureau Corp., a subsidiary of IBM. (Gage said the case, on appeal, dealt with misrepresentation, not negligence.)

In a 52-page decision, Judge Miles Lord said that after three years with the bill before them, wholesalers "still had no more reliable guide to the obsolescence of their inventory than the level of dust upon the merchandise."

Robertson told the senate subcommittee that Dosland's bill could increase computer sale and rental costs because it could upset contracts that now limit liability to replacement of bad parts.

The bill could make it "economically prohibitive" for banks to continue using computers to process checks for the correspondent banks, said William S. Fallon, attorney for American National Bank And Trust Co., St. Paul.

Heavy investment in automatic data processing, he said, has resulted in efficiencies that have allowed the banks to produce such innovations as "free" (minimum deposit) checking accounts.

Sen. Dean Nyquist said most errors in automatic data processing result from improper programming, an observation the lobbyists generally agreed with. But they said a defective transistor or other part also could cause error.

Robertson suggested that the state itself could run afoul of the bill because it processes state income tax returns by computer.

He added that there are definitional problems with the "word" computer.

Roy Weir, lobbyist for Northwestern Bell Telephone Co., questioned the wisdom of the bill although he said it would not directly affect his company.

Sen. Clifton Parks wanted to know who would be entitled to recover in the case of a couple that sought a divorce after having been mismatched by "computer dating."

The subcommittee headed by Sen. Jerome Blatz is expected to continue the hearing in about two weeks.

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Will 40% Be Unable To Cope ?

Programming Salary Levels Said To Be 'Inflationary' By Canadian

By George E. Toles
Special to Computerworld

TORONTO, Ont. – Computers and the men who run them are hard to do business with.

The machines are expensive, fussy about creature comforts, and utterly intolerant of human error. The men who run them are expensive, fussy about the tasks they are set to, and restless.

It is commonplace in the industry that such men are loyal to their machines, not to the companies.

Unfortunately, both man and machine are an indispensable part of a growing range of businesses.

T.J. Vander Noot, associate director-general of computer operations for the Dominion Bureau of Statistics, estimates that for every $1 spent by Canadians to rent computers in 1968, $1 was spent on software and $2 on salaries.

Other overhead of $100 million, he says, brought total data processing costs last year to more than $625 million, or 1% of the gross national product.

The shortage of good computer programmers and systems analysts is acute. Rupert Kemp, director of Toronto's Computer Personnel Bureau, estimates there are now about 20,000 in Canada. He will travel to Britain this spring in search of some of the additional 4,500 qualified men he calculates will be needed this year. Another 6,000 will be needed in 1970, he says.

Salaries Rising Fast

In their aggressive hunt for talent, computer users are bidding salaries up by 10% a year on the average, Kemp says. Some are rising at 25% annually.

Vander Noot calls this trend inflationary. "Every time I go out to hire another programmer and find the salary for beginners has gone up another $500, I cannot help but be convinced automation is a direct contributor to inflations in our economy," he said.

Peter King, information services manager for Canadian General Electric Co. Ltd. of Toronto, says turnover among programmers is about 40% a year. For technical sales personnel, he says, the rate climbs to about 65%.

It costs CGE about $15,000 to train computer salesmen from scratch, King says. For a good software specialist, $25,000 is his fairly conservative estimate.

To help slow the turnover, CGE is setting up a new incentive plan for its sales force, and is working on a similar scheme for its technical employees.

In its hiring policy, CGE is being more careful to avoid the so-called gypsies. "We look for a man who has demonstrated some stability," King says. "We will want to see how many times he has changed his job – and why. We would also be encouraged if he had a wife and six kids.

"We realize there will always be a fringe element moving through. But it is our duty to get a good nucleus of stable people."

Kemp warns that worse personnel problems are in store as the tasks computers are put to become more sophisticated.

Expensive Number Cruncher

"Management is soon going to wake up to find they are using the computer as a processing machine rather than a management tool. Its greatest role will be as an information retrieval system for management, rather than merely a number cruncher – it's a bloody expensive number cruncher."

Bug as the computerized payroll gives way to the computerized market analysis, distribution network, and management information system, Kemp estimates 40% of the programmers now in the business will be unable to cope with the new problems involved.

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Another GSA Contract Goes Out For Plug-To-Plug Units

PLAINVIEW, N.Y. – Another GSA contract – this one covering both IBM 360-compatible tape drives and disk units – was awarded to Potter Instruments last week.

This follows the award to MAI of a similar contract (CW April 23).

A key-to-tape unit made by Potter was also included in the award.

Potter, like many other independent peripherals manufacturers, is taking special interest in government business as a result of changing government attitudes toward data processing equipment procurement.

Government agencies are being encouraged by GSA to consider purchasing their data processing systems on a component basis rather than in complete system packages.

GSA feels that more efficient and economical data processing systems may be developed through this approach and that a healthy competition for government business will result in a broader range of choice, higher quality, lower prices, and more efficient service of data processing equipment.

The Potter magnetic tape transports covered by the new GSA contract are the SC7290 series, designed for use with IBM 7000 and 1400 series data processing systems and are plug-to-plug interchangeable with the tape units used in those systems; and the SC2400 series, for plug-to-plug use on IBM 360 systems.

The disk drive is Potter's DD4311, a random access memory system with removable magnetic disk storage for direct use with IBM 360s.

The data entry system is the Potter KDR series, used for transferring source data from a keyboard directly to 7- or 9-channel magnetic computer tape.

The KDR combines direct keyboard-to-tape transcription and verification in one machine.

The KDR family of products includes a wide range of auxiliary devices to extend the functions of the basic keyed data recorder, such as poolers with and without control console, card reader, paper tape reader, adding, machine, later, electric typewriter input, and printer.

Table of new GSA prices for plug-to-plug compatible tape and disk units. On the right are the equivalent IBM model rentals.

Potter Model	Potter Monthly Rental	Equivalent IBM Model	Equivalent IBM Rental
Disk Units			
DD4311	$460.00	IBM 2311	$590.00
Tape Unit			
SC 2402	$460.00	IBM 2401 Md 2	$500.00
SC 2403	$600.00	IBM 2401 Md 3	$810.00
SC 2405	$600.00	IBM 2401 Md 5	$550.00
SC 2406	$650.00	IBM 2401 Md 6	$860.00

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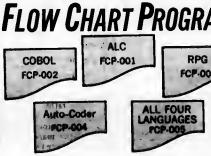

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Ex-ACM President's Proposal Stars In Harvard-CIA Row

CAMBRIDGE, Mass. – Anthony G. Oettinger, past president of the Association for Computing Machinery, found one of his proposals to the Central Intelligence Agency to be Exhibit A on the front page of an underground newspaper this month.

The page was reproduced by a national magazine after the recent Harvard University student disturbances.

The newspaper, *Old Mole*, which calls itself "a radical biweekly," said that Xeroxed copies of the documents were deposited at its office shortly before 300 students were arrested for occupying University Hall.

The importance of the documents, in the paper's opinion, was that they showed that Harvard was "first and finally . . . a plaything of the interlocking government-Pentagon-foundation world" rather than an institution of higher learning.

Graphical Display

The Oettinger proposal was for a graphical display and extensible languages in text manipulation systems and had been submitted to the CIA June 10, 1968, ten days after Oettinger left the ACM presidency.

The newspaper did not go into details of the actual proposal, but it appears to have been an unclassified one asking for $25,000 and related to an earlier Oettinger project called The Brain concerning a new approach to question-answering systems based on procedures rather than structures.

A separate part of the proposal involved the development of languages to be adapted by the user to the way he wanted to phrase the problem.

The policy questions involved in the proposal had been noted by the university because the Oettinger proposal went further than previous Harvard-CIA connections had. Previously none of the CIA money had been used to pay any salaries, but in this case some part of the money was to be used to pay a systems programmer and for secretarial services, and there was other money which would go indirectly towards salaries.

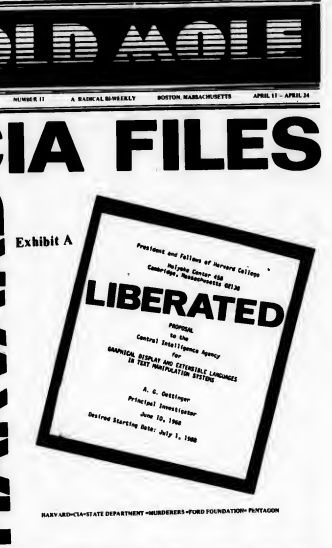
Earlier proposals had involved the development of three-dimensional displays. CIA funds had been used to purchase some equipment but not for salaries.

Unclassified

Although the newspaper suggested that the connection between Harvard and the CIA had been secret, it appears that the fact that the university was receiving support was not considered as classified information and that Harvard felt that this matter was potentially unexceptional from a public relations point of view. On the other hand, while the contracts would be a matter of public record, it appears that some of them might have been under the name of some organization other than the CIA itself.

Oettinger had been involved in a probe of the intelligence community under the office of Science and Technology during the Johnson administration.

Oettinger also took part in the various Harvard faculty discussions on the proposed elimination of the Reserve Officers Training Corps (ROTC) from the campus. He proposed a resolution which noted the need for armed forces but later withdrew it and agreed with the suggestion that the ROTC program should be reduced to an extra-curricular activity without special privileges or facilities.


SPECIAL BUST SUPPLEMENT

FOR REGULAR CONTENTS, SEE INSIDE

OLD MOLE

194 NUMBER 11 A RADICAL BI-WEEKLY BOSTON, MASSACHUSETTS APRIL 11 – APRIL 24

HARVARD CIA FILES

Exhibit A

LIBERATED

PROPOSAL to the Central Intelligence Agency for GRAPHICAL DISPLAY AND EXTENSIBLE LANGUAGES IN TEXT MANIPULATION SYSTEMS

A. G. Oettinger Principal Investigator

June 10, 1968

Desired Starting Date: July 1, 1968

HARVARD=CIA=STATE DEPARTMENT=MURDERERS=FORD FOUNDATION=PENTAGON

The front page of *Old Mole* shows a reproduction of the cover sheet of the "liberated" proposal to the CIA for "Graphical Display And Extensible Languages In Text Manipulation Systems," written by A.G. Oettinger.

ACM Financial Crisis Confirmed

(Continued from Page 1)

doing this would handle only additional liabilities due to increased membership, and it was expected that the society would still be $70,000 in the red.

In its six months of operations ended Dec. 31, ACM lost $150,000.

Some changes in the society's benefits, which the council suggested would improve the situation, are:

New members and those who renew their memberships will receive only one publication, *Communications*, and at the same time will receive a $7 credit applicable toward a subscription to one other journal.

Prices for other journals will be $7 each for the *Journal* and *Computing Surveys*; and $12.50 for *Computing Reviews*.

Dues of student members are increased from $7.50 to $12.50.

A letter from ACM council member Herbert Grosch, and an editorial comment appear on Page 8.

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Industry-Oriented Computer Expertise To Be Sold By Honeywell-Auerbach Co.

PHILADELPHIA – Auerbach Corp. has joined with Honeywell to form a third company to sell computer equipment, terminals, communication networks, programs, and facilities separately from either Honeywell or Auerbach.

Temporarily, the company – Honeywell-Auerbach Computer Services Inc. – will open in Auerbach premises in Philadelphia and intends to develop a line of management services for savings and loan associations and other selected applications.

Most of the operation will consist of selling advance data management systems which utilize the capabilities of both firms.

Isaac Auerbach said that many computer systems have been found to serve their users poorly or not at all primarily because of inadequate staffing, unsuitable software, and the inability to use the free standing computers. The aim of the organization, he said, would be to fill these voids. The computer services would be offered, he said, on a subscription basis to handle the needs of a specific industry, including programming the systems for the industry.

Charles L. Davis, Honeywell vice-president, said that they anticipated the market for dedicated services would be $650,000,000 by 1972, up from $100,000,000 last year.

Independent Company

Both Honeywell and Auerbach emphasized that the new company will be totally independent from the services of the two corporations and that the Auerbach publication services would continue to have complete independence in their evaluation of computer products. The new company will, they said, "be treated by Honeywell as another computer customer and by Auerbach as another independent client."

Display System 360 Compatible

MOORESTOWN, N.J. – A general-purpose alphanumeric display system that will sell for less than $5000 per terminal, and is both hardware and software compatible with IBM 360 and other computer systems, has been announced by Ultronics Systems Corp., a subsidiary of Sylvania Electric Products, Inc.

Including a standard alphanumeric keyboard and display monitor, Videomaster 7000 allows for 960 displayable characters and a 74-sq. in. image.

The system operates with existing software in s remote mode, and the system interfaces with a 1200 or 2400 baud communication circuit terminating into an IBM 2701 Type III Adapter.

The manufacturer states that the system can operate as a stand-alone terminal or with clusters of terminals in each remote location. In addition, the company points out that other peripheral devices such as printers or magnetic tape units may be interfaced with the system.

In addition to the standard editing features, the unit offers formatting and hard copy options.

The cost of the Videomaster 7000 is $4,980 per terminal, with lease prices of $156 per month for 18 months or $128 monthly on a 60-month contract, including maintenance. In addition, OEM pricing is available on request.

Videomaster 7000 is the third video terminal product announced within a year by Ultronics, which operates more than 12,000 real time terminals in the United States and foreign countries.

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TLW COMPUTER INDUSTRIES

Up to 32 Keyboards Can Encode Data on One Tape

LOS ANGELES – A new, computer-controlled keyboard input system has been announced by Computer Machinery Corp.

The Model 3 Keyprocessing System follows a key-to-disk-to-tape transcriber introduced as Model 9 last September.

The Model 3 consists basically of a supervisory console, a 1.6 μsec computer, a synchronous magnetic tape unit, and associated system programs.

It can be configured with up to 32 key stations which are able to use independently and simultaneously any of up to 32 different record formats, according to the company. Data is stored on tape in 80-character blocks. Formatting can be done automatically by the program in the system's computer, claims the company, and the user will segregate the records into their proper order on this general-purpose computer.

New Products

Model 3 is priced at $600 per month for the system, less key-stations, and $75 per month for each station. Purchase prices are $32,000 and $3,000 respectively.

Deliveries are scheduled to begin in the fourth quarter of this year.

The company has sales offices in Los Angeles, New York, and San Francisco, with general offices at 2000 Stoner Ave., Los Angeles, Calif. 90025.

Mobile Terminal

MOUNTAIN VIEW, Calif. – A mobile terminal for time-sharing users has been announced by Anderson Jacobson, Inc.

The ADT 233 acoustic data terminal combines a page printer, Teletype terminal, and optional paper tape.

The manufacturer says the terminal will not respond to telephone or room noise well above its sensitivity threshold for desired signals.

The unit is shock-mounted in a fiberglass case with four wheels.

Anderson Jacobson, Inc. 2235 Mora Drive, Mountain View, Calif. 94040.

Two Minute Facsimile

Facsimile transmission of page-sized documents is said to take less than two minutes over ordinary voice-grade lines, using a new device by Dacom, Inc.

The Dacom DFC-10 facsimile bandwidth compression system is designed to effect reduced transmission costs by eliminating redundancies normally present in graphic data, the company

maintains. It uses digital transmission and operates with various types of facsimile and modem equipment.

The company claims they can also be used with computers and data terminals to reduce storage, processing, and communications costs for computer graphics.

DFC-10 systems are housed in desk-top enclosures measuring 7.5 by 17 by 17 in. Weight is stated at 40 lb.

Dacom, Inc., 3946 Fabian Way, Palo Alto, Calif. 94303.

Tag Scanner

Tag-scanning capability of Cummins-Chicago Corp.'s Scanak 216 has been improved by the introduction of an option to permit the processing of small merchandise tags or tickets.

The new capability is said to do away with the need for a separate device for converting the data and to eliminate the need for a different machine to produce them. They can be produced in continuous form on the

line printer of any computer, with information for the Scanak repeated in binary decimal code, the company says.

Cummins-Chicago Corp., 4740 N. Ravenswood Ave., Chicago, Ill. 60640.

The computer world discovers the fast-talker

33% bonus from hands that feed computers

Talk about fast-talking a computer. Data entry never had it so good . . . or keypunch operators so easy. Your operator simply enters the data via an electronic keyboard and it is banked immediately in an inexpensive base – a magnetic tape cassette. In short . . . she talks to your computer on tape, at a portable station, at increased efficiency of up to 33% over keypunch entry.

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Cassettes are later converted to one-half inch computer tape which is readable at 800 bpi interchangeably on seven or nine-track tape drives.

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Software Independants Say Price Software Separately

PRINCETON, N.J. – All software should be priced, including operating systems, input/output routines, and assemblers, according to a position adopted by the Association of Independent Software Companies last week.

"You need a disk pack to be able to use a disk drive but you have to pay separately for it," Dick Jones, President of the Association told *Computerworld*. "Why shouldn't you then have to pay separately for the input/output routine that is used to make the disk drive work?, he added.

Currently the Association is investigating a number of the specific problem areas to document exactly what the new position means and, hopefully, will put out a formal position paper within the month.

IBM's announcement on the new pricing of their services is expected at about the same time and it appears that the Association move has been taken to coincide or predate the new IBM policies.

Says Users Would Benefit

Jones pointed out that it would be a logical extension of the policy to suggest that systems support should also be defined and priced separately.

Jones said that he was sure that multiple suppliers would improve the situation from a user's point of view.

He pointed out that a recent issue of the *EDP Industry Report* had given effective figures for the cost of both software and maintenance and that he thought the figures were "pretty good."

These figures were unofficial estimates of where the EDP customer's money went. After allowing for a 25% profit margin they indicated that only 3 cents went into software development directly.

However when marketing and administration had been considered, and the cost of application packages and field support for utility routines and compilers had been allowed for they showed over 8 cents out of each dollar(or 11% of IBM's costs) was directly related to software costs, excluding systems engineering.

Now you can have Job and Step-Resource Accounting for OS/360 MVT

New proprietory program solves problems of allocating time, core and I/O charges when many divisions are using your computer

Now available are the first OS/360 MVT Job Accounting routines for collecting and recording information which can be used for the cost accounting of systems resources, developed by Diversified Data Services and Sciences Inc., Research & Special Projects Division.

The routines will log CPU time, clock time, priority, core and I/O devices allocated and completion codes for each job step. The information will enable management and operations to:

- Identify and measure all jobs processed by your system.
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These routines are also applicable for billing of batch jobs for large-scale service bureaus.

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For full information call or write Mr. John Czerkies, Director, Research and Special Projects Division.

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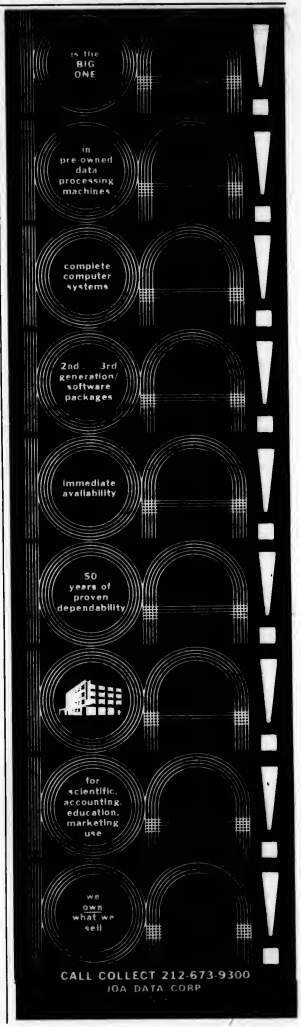

Editorials

Frank D. Thompson

Some years ago, an already successful publisher was attracted by a paper which boasted – as its chief asset – a sizable tax loss. He bought it, and faced the question of what to do with it.

In similar circumstances, many men would have quietly folded the publication, perhaps merging it with one of their own papers. Luckily for us all, that sort of philosophy did not appeal to Frank Thompson.

Datamation – for that was the paper – has been a great help to our profession for more years than most of us have been concerned with computers. Its constant success is a great tribute to the three editors concerned, and to all their associates. But in assigning credits, pride of place must be given to the character of Frank Thompson who saw that it lived.

We mourn his passing.

Discrimination Should Stop

One of IBM's aims during the current rethink should be to avoid any discrimination between different classes of customers, or between different groups of the public when it comes to accessing such basic data as product announcements, price lists, etc. Currently some IBM customers are being supplied with the information, while others are being told it is not available.

The company's first excuse is that the material is company-confidential, and is not distributed outside. Factually, this is simply not true, as the data is distributed through a number of pipelines – and indeed is often sent directly to IBM's competitors!

The next excuse is that it is IBM's business judgment that it should discriminate in this way. This might be true – but the consequences of deliberate discrimination may well be to increase the danger of large damage swords, which is hardly in the stockholders' interests.

However, the real point is that both of these excuses are just that – excuses. They are basically irrelevant. Users and prospects are currently being divided into different classes by IBM policy, and some of them are being discriminated against. We hope that this will stop, and that effective measures will be taken to prevent its recurrence.

What an Application

In the computer business big, big numbers are almost as common as small numbers. The performance characteristics of the system seem to be astronomical in themselves, just as the nitty-gritty milliseconds and microseconds seem almost too small to be sensible. Only the dollar figures have a built-in scale which allows many people to appreciate what they really mean – and this is why dollar figures are so sought after.

Even so, it is distinctly numbing to encounter potential savings that require *ten digits* to express them in dollars! Four billion dollars is beyond most minds – and yet this is the amount hoped to be saved by the proposed computerization of Congress. That's a lot of money.

We hope that those involved in the project keep their minds un-numbed and are able to contemplate the big, big numbers, while appreciating the importance of the little numbers which are the basis of all their hopes.

No Appearance of Crisis?

The chairman of the ACM Finance Committee had reported that the society was in the red, the treasurer had said that the society was essentially broke and could not continue its current mode of operations – and the working capital had dropped 40% in a few months.

Yet, according to ACM President Bernard Galler, there "didn't appear to be a crisis."

What was he waiting for – California to fall into the sea?

Letters to the Editor

Grosch Guesses at Why ACM Council Has Ostracized Him!

Thank you for the stories on the ACM financial debacle.

There's much more.

You don't mention that the council has a standing committee on finance, which for the critical period was headed by Bruce Gilchrist. As a result of all the yammering I had been doing about ACM being busted, I was asked to meet with the regular members of the committee. But when the crisis blew up, Walter Hoffman called an emergency session of the finance committee, after the vice-president – acting on behalf of the executive committee – had already made the adjustments reported by you. And that session just happened to be on a day when I couldn't possibly come, and for which the impossibility of my attendance was known. I was told that the three people who did meet only ratified Carlson's actions.

Toward the end of the emergency council meeting at Kennedy, I moved for drastic economies beyond the Stage Three recommendations by Galler, Carlson, Parker, and Hoffman. Among these were elimination of the tutorial journal and bimonthly issuance of *Computing Reviews*. Since estimates, cool or crisis, of ACM finance have regularly been off by $200,000 every year, I assumed the $225,000 surplus predicted by Stage Three would actually come out at breakeven, leaving us still teetering; my additional cuts aimed at a further expense reduction of $200,000 a year. Do you know, I couldn't even get a *second*? Not one single council member agreed!

The vote to increase student dues was a disgrace, and remarkable besides from a group dominated by academics. No wonder the kids don't trust professors!

I believe your reporter was mistaken in attributing the angry criticism of my "disruptions" to my financial activism. I would guess that it arose from a much more painful series of scenes at Atlantic City, Boston, and Ifip Edinburgh in which I protested certain Afips actions (and ACM ratification thereof) to Paul Armer, Dick Canning, Tony Oettinger, Dick Tanaka, and others. These included the creation by Afips during Gilchrist's chairmanship of an executive directorship, the *ex post facto* adjustment of constitution and bylaws to permit this new office, and the selection of Gilchrist for the job. At the same time, Walter Hoffman, the appointed ACM treasurer, was also chosen treasurer of Afips – a clear conflict of interest, still not completely resolved. I used words like "illegal," "corrupt" – an old favorite – and "dirty pool"; I recited the poor guidance given the ACM Council by Gilchrist's finance committee; I was ostracized. Gulp!

Very little can be done by three or four rebellious council members, even old tough ones like me. Only when the membership rises, as it did behind Carol Sampson when she pulled down the "news publication" with her question of importance, can genuine improvement be effected. The throttling grip of the editorial board on ACM finances must be broken, sensible audit procedures must be set up and the results explained to the council by competent professionals, the development program must be re-examined – the list is almost endless. I intend to recommend at the May 13 council meeting in Boston that chapter and/or regional business meetings be called to involve the membership in ACM problems. In parallel to that, I believe all of us – not just current ACM members, but everyone concerned for a useful organization of our specialism – are going to have to think about a completely new society, modeled perhaps after the British Computer Society; converting Afips to an association of individuals instead of societies is a possible avenue.

Oh, one last thing: you didn't mention in recent stories that one constitutional revision recommended by the Galler-appointed committee was to eliminate council members-at-large!

H.R.J. Grosch
Member-at-large
ACM Council

Washington, D.C.

Reader Thanks CW Staffer

It is gratifying to know that a publication such as *Computerworld* can be not only newsworthy, updated on all the latest advancements in the field, and well informed, but individually serviceable, too.

Recently, I recalled an article in your publication relating a machine in the classic *Gulliver's Travels* to the modern computer, which would throw an interesting sidelight onto a thesis I was involved in for my degree course. Needless to say, I did not have the issue available due to the scavangers at work who scoop them up as soon as I finish reading them.

I wrote a letter requesting that particular article (not knowing what issue, or even what month it appeared) expecting a negative reply months later. But this was not the case, for within a few days I received a call from your Miss Jones, validating the article and informing me it was to be sent out – at no charge – in a day or two.

I wish to thank Miss Jones for her pleasant and thoughtful approach to my individual problem and to thank *Computerworld* for its continued excellence in journalism.

Harold E. Starr

Danvers, Mass.

"This is information retrieval, or has it just sprung a leak?"

"Well I must admit I don't know much about 3D plotters, but I know what I like."

Generation Gap, Part 2: The Costs of Avoiding the Gap Itself

In last week's article on the Burroughs 500s we brought out that they appeared to be bridging the generation gap. This, of course, is an extremely valuable asset because of the problems many users have experienced in moving from the second to the third generation.

However, nothing comes free in this world, and thus we must consider what the cost of this has been for the Burroughs user. When the B5000 came out it was heralded by much excited interest. An article in *Datamation* had as its main theme the line, "I touched a B5000!" But shortly after this the costs to the user showed up. The system was slow because the master control programming used large amounts of time. There was a lot of swapping between the system drum and the main program.

It appeared at first that efficiency could therefore be a cost to the user. This is now seen not to be a valid conclusion – because now the efficiency of tha B5000 (or the 5500 as it is now called) is high.

The technical explanation given is that a lot of the inefficiency arose from two situations. One was lack of expertise in creating operating system software during Burroughs' pioneering efforts. The other was a lack of sophistication among users, making it difficult for them to utilize the then-novel multiprogramming techniques effectively. Both charges are true. So if we are to determine what the user costs are, we can't stop at something as simple as efficiency, but have to dig deeper.

Measures of Efficiency

In fact what had happened was that the measures of efficiency had changed and that the efficiency now belonged not to the hardware but to the software. No longer could it be said that a hardware system was fast, slow, etc., but instead the user had to evaluate it from the point of view of the ever-changing software system. He had lost the ability to use instruction times as a measure of performance.

This was a major loss because we still have no good, recognized method of evaluation to take the place of instruction times. This then is part of the cost that the user suffered.

Wait For Software

The second major cost to the user for the capability of being able to bridge the generation gap was having to wait until the software caught up with his needs. Previously users were able, using assembly language, to patch operating systems so that they could add a particular facility that they wanted. This was tried by the 5000 users and, on the whole, was a failure. It failed because when the facilities were added by Burroughs at a later date, or, even when other facilities were added, the assembly language patches no longer worked. Bit by bit, users came around to the concept that it was better to use the Burroughs package rather than to try the patching.

These, then, were tha two costs that a user had to pay. He had to evaluate the throughput without the use of instruction times as a crutch, and evaluate it on the software rather than the hardware. He also had to wait until additional facilities were included in the software rather than having the ability to patch them in fairly safely.

And A Psychological One

Many users or prospects, however, saw an additional cost in the B5000. The problem here was that there seemed to be no answer to the question, "If the B5000 is so good, then why haven't the other manufacturers followed it? Surely at least one out of the 10 major manufacturers would have picked up a good idea in eight years."

Machina Languages Barred

It is a good argument – but there seem to be good answers. The answers come not from the technical area, as might be expected, but from the marketing area. The standard way of designing a computer is to select a specific market and to design for that market. The technical characteristic of the Series 500 is that assembly languages are not welcome.

If, therefore, the market which is selected to be served by a new computer has an assembly language requirement, then it is technically impractical to follow the B500 approach.

Looking back through the announcements of computers since 1960, it appears that in no other case has a system been announced which did not have among its marketing aims the ability to run an assembly language of some sort. With this in mind, it can be seen that none of these machines could in fact have used the B5000 approach, not even the 360 which IBM Vice-President George Beitzel said represented a "reset to zero." In fact, tha 360 had a basic requirement for assembly language. It had to run the 1400 programs in simulation " or emulation to be able to pick up that 1400 market. Even a requirement for efficient emulation of assembly language prevents, from a technical point of view, the utilization of the B5000 approach. So the reset to zero that Beitzel was talking about was not quite to zero. Burroughs, on the other hand, in 1960 had no large-scale users that it had to look after. There was a new approach for a completely new market. Burroughs never had the requirement or the opportunity to protect a specific market, which may be why it alone has been able to produce a B5000.

These, then, are the three costs that Burroughs users have found in bridging the generation gap. They have had to pay for their privilege by losing the use of their accustomed efficiency measurements, by accepting a delay in the use of systems until both hardware and software were present, and by facing up to being a pioneer with a 1961 concept that had not conquered the industry.

Tha Future

As for the future, that is another matter. The implications of the Burroughs system are large and will be explored in next week's conclusion to the story of the 500s.

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Computer Records Play Of Maladjusted Child

ATLANTA – Matadjusted children, ranging in age from 7 to 12 years, are having fun in the interest of science by playing games with toys linked to a computer at Georgia State College.

The experiment combines modern data processing techniques and old-fashioned therapy.

In a play area resembling a penny arcade, the children are allowed to choose between aggressive toys and constructive toys, while a computer automatically monitors the play through sensors linked to the toys.

The playroom was designed by Dr. Luciano L'Abate of Georgia State.

To conduct its experiments, the Georgia State Department of Psychology is using the facilities of the college's computer center, including an IBM 1800, which is normally used in a process control setting.

Dr. Earl Brown, head of the department, said the system allows study for mind and behavior through computer-controlled experiments under a variety of conditions, with data available immediately for analysis.

"Previously," said Dr. Brown, "psychologists have been limited to short-term experiments which produced enormous amounts of material to study, and many times the researcher could not arrive at a satisfactory answer."

The play therapy experiment is one of several research studies which involve the computer.

Faculty members and graduate research students in psychology are preparing computer-controlled equipment to: record brain waves of rats and monkeys as they learn to respond to signals to operate simple machines for food pellets; measure the response of human subjects in an isolation booth as they are stimulated by a light-tone and mild electric shock at intervals; and score other experiments which involve human decision-making abilities.

Psychologist watches from a booth equipped with one-way glass as a youngster participates in a constructive play experiment.

New Books

Transmission Lines for Digital and Communication Networks: An Introduction to Transmission Lines, High-frequency and High-speed Pulse Characteristics and Applications, by Richard E. Matick, Member, Technical Staff of Director of Research, IBM Corp. (McGraw-Hill Book Co., 330 W. 42nd St., New York 10035).

This book brings together in one volume, relevant information and concepts for a modern-day understanding and use of transmission lines. The author's approach allows those not acquainted with transmission lines to acquire the basic concepts using simple sc-circuit analysis, and those with some previous knowledge to relearn the subject matter.

Recent advances, such as anomalous skin effect, superconducting lines, and directional coupling effects are covered, and a discussion of velocity of propagation is provided.

Special emphasis is placed on pulse characteristics and behavior.

Handbook of Computer Hardware, Management Information Services, P.O. Box 5129, Detroit, Mich. 48236.

This handbook contains detailed descriptions and specification sheets on the most commonly used computers. The reports were prepared by editors experienced in data systems publishing, working in cooperation with the manufacturers. Reports are updated quarterly.

Burlington Control Data Institute Granted Accreditation

WASHINGTON, D.C. – Control Data Institute, 20 North Avenue, Burlington, Mass., has been granted accreditation here by the Accrediting Commission of the National Association of Trade and Technical Schools.

The commission is listed by the U.S. Office of Education as the official accrediting agency for the country's private trade and technical schools.

Accreditation is an authoritative index of a school's standing within its own profession and within the local community.

To satisfactorily fulfill the commission's standards of educational, ethical, and business practices, Control Data Institute underwent detailed study and was visited by an examining team of qualified professionals and specialists.

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SigPlan Will Sponsor Symposium On Extensible Languages May 13

BOSTON – SigPlan is sponsoring a one-day technical symposium on extensible languages on May 13 in Boston.

The symposium will concentrate on systems in which the user is given a high-level base language and then extends this language by means of given definitional facilities. The result is a specialized language which is readable and machine-independent.

The symposium will be expository in nature and is intended both to supply motivation for the general concept of extensibility and to present examples of the design and use of extensible languages.

The program, a series of short illustrated presentations, is directed toward those concerned with the design, selection, or implementation of programming languages.

The symposium will be held from 9 a.m. to 5 p.m. on Tuesday, May 13, in Room 200, War Memorial Auditorium, Boston, Mass. Attendance is open to all. The fee for registration on the day of the conference will be $15.

To register in advance, send name, employer's name, address, indication of ACM or SigPlan membership (if applicable), and $10 to Extensible Languages Symposium, Massachusetts Computer Associates, Lakeside Office Park, Wakefield, Mass. 01880, before May 5.

ACM Committee To Hold Seminars In Three Cities

NEW YORK – Documentation Techniques I and II are being presented by the ACM Professional Development Committee, 211 E. 43rd St. here, in three western cities in May. Both seminars are aimed at computer systems and applications programmers, analysts, and documentation specialists in both business and scientific environments.

Documentation Techniques I is a one-day seminar instructed by Dr. Ned Chapin of InfoSci Inc. which covers documentation elements, standards, software aids, and policies. It will be given at the following times and places: Monday, May 12, Safari Hotel, Scottsdale (Phoenix), Ariz.; Tuesday, May 13, Holiday Inn, Albuquerque, N.M.; and Monday, May 26, Fairmont Hotel, San Francisco, Calif.

Documentation Techniques II is an advanced presentation of a successfully tested workbook approach to the system and program documentation problem. The instructor is Stuart Bunday of Mathematical Engineering Associates. It is intended for persons who have attended Documentation Techniques I or who have a good foundation in EDP documentation methods. It will be presented Tuesday-Wednesday, May 27-28 at the Fairmont Hotel in San Francisco.

Evans Is Elected DPSA President

STAMFORD, Conn – Thomas R. Evans, vice-president of product development for American Business Systems, Inc., Philadelphia, was elected president of the Data Processing Supplies Association at the annual meeting held in Mexico City.

He succeeds Paul O. Wilson, president, Baltimore Business Forms, Inc., Baltimore.

Other officers elected included: Joseph J. Hackett, vice-president, Data Processing Card Division; John H. Dunham, vice-president, Data Processing Forms Division; and Gene Garofalo, vice-president, Data Processing Plastic Card Division.

Wilson reported that the past two years' growth of DPSA has been a result of change, forged by the emerging OCR technology.

The spring membership meeting will be held at the LeChateau Champlain Hotel, Montreal, Canada, June 16-18. This meeting is scheduled concurrently with the DPMA Exhibition in Montreal.

Further information is available on the Data Processing Supplies Association at their new headquarters, 1116 Summer St., Stamford, Conn. 06905.

smtwtfs calendar smtwtfs

May 6, Washington, D.C. – Post Office Department Symposium. Contact: Paul A. Newman, NSIA, 1030 15th St. N.W., Washington, D.C. 20005.

May 16, Rochester, N.Y. – Upper New York State Systems Seminar (The Association for Systems Management). Contact: Joseph W. Bernhard, (315) 797-2600.

June 13, Chestnut Hill, Mass. – Ninth Annual New England Systems Seminar. Contact: N.E.S.S., P.O. Box 1283, Boston 02104.

June 19-20, Minneapolis, Minn. – ADAPSO Management Conference. Contact: J.L. Dreyer, ADAPSO executive vice-president, 420 Lexington Ave., New York 10017.

ACM Art, Music Festival Scheduled

SAN FRANCISCO – The Second Annual ACM Computer Art and Music Festival will be held here August 26-28, in conjunction with the ACM 1969 National Conference.

Individuals are encouraged to submit computer generated art, music, or sculpture for display at the Festival. Contributors should send a one-page description of their art to Glyn Jones, Burroughs Corp., 460 Sierra Madre Villa, Pasadena, Calif. 91109.

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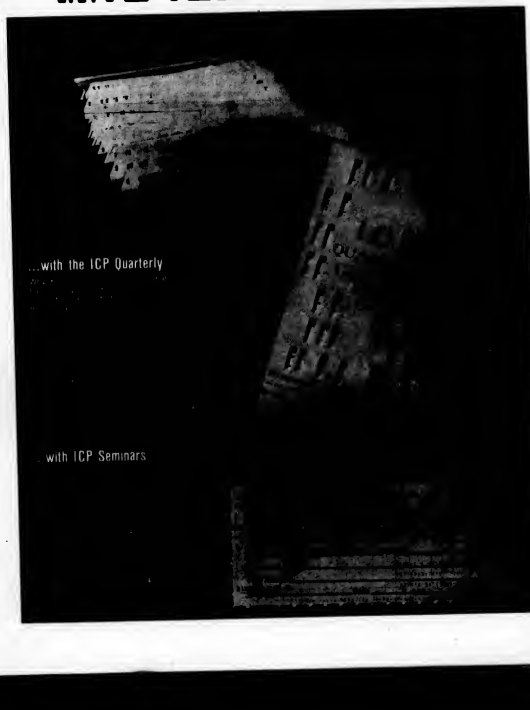

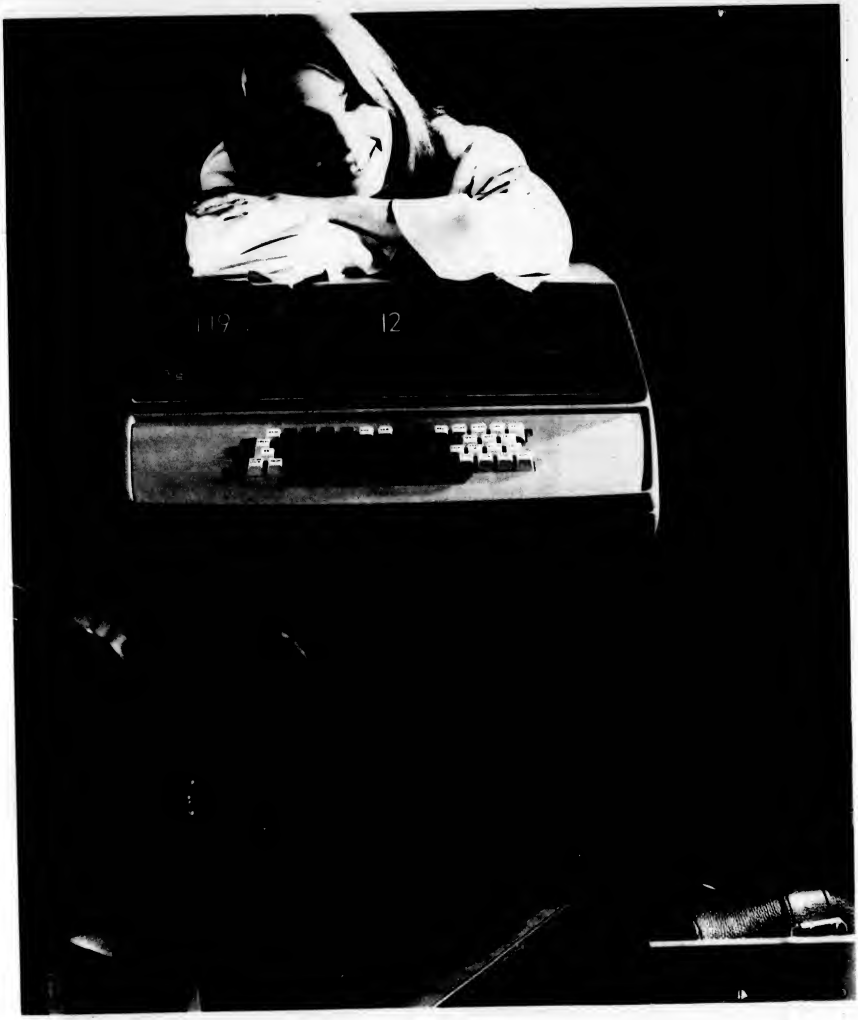

If you're considering keyboard-to-tape, consider your operators.

Ty-core has.

By now you've heard all the arguments in favor of converting your data input processing from keypunch to keyboard-to-tape. Basically keyboard-to-tape is faster and lower in cost. Two excellent reasons for converting. The big hang-up, however, has been the time and trouble it takes to retrain your operators. Note: "has been". Now, of the many keyboard-to-tape units offered today, one is designed specifically for simplified training and operation. It is manufactured and marketed by Ty-core.

The Keyboard

The keyboard of the Ty-core operator station is arranged in keypunch format. The operator uses the system she's accustomed to. The one difference is "touch". The Ty-core keyboard utilizes optical rather than conventional mechanical switching. The result is a true "typewriter feel" similar to that of the most expensive electric machines, enabling the operator to maintain speed with maximum efficiency. A mechanical interlock prevents depressing two keys simultaneously.

Any one of 1800 programs can be selected, entered and automatically verified.* Any record length can be selected – up to 240 characters. Operation of "duplicate", "skip", or "left zero fill" is automatic at virtually instantaneous speeds. Mode switching is simplified by use of keyboard keys with front panel selection.

Field Control

A field control display, located on the front panel, identifies the field and tells the operator exactly where she is within the field at any time. This exclusive feature* simplifies operation and helps to increase productivity by eliminating field errors.

Error Display

A unique error display "talks" to the operator in plain English. There are no cross matrices or BCD lights to interpret, and no bouncing rows of numbers to decode. If the operator is in column 119, the number 119 is displayed in ¾" numerals. If the character (K) is in question, the (K) is displayed.

Ty-Tape

In the Ty-core system, data is keyed directly from the keyboard to a Ty-tape cartridge. This eliminates the need for threading and handling tape-to-tape reels and prevents data loss or tape damage. The cartridge is virtually indestructible and may be used over and over.

Data Pooling

A Data Accumulator accepts data from one to one hundred operator stations. This enables the supervisor to pool data, making one large reel from the outputs of individual operator stations. Pooled data from the Data Accumulator is in IBM compatible form.

* Optional

Strictly Personal

Additional "human engineering" factors incorporated into the design of the Ty-core keyboard-to-tape system are worthy of mention. The operator's station is available in a variety of handsome decorator color combinations. The unit is operated at comfortable desk-top level using a modern desk and contour-comfort chair. The desk even has drawers for the operator's personal things . . . a feature not available in most competitive units.

Strictly Business

Ty-core keyboard-to-tape stations rent for as little as $99 each per month. The Data Accumulator for $180. Operator training has been cut from weeks to hours by utilizing modern audiovisual techniques. For additional information write on your company letterhead.

See A Demonstration

Ty-core hospitality suite, Sheraton-Plaza, Boston, May 14, 15, 16. Use our "door-to-door" limousine service from the War Memorial Auditorium to the hotel.

ty-core

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(617) 256-7525

Terminals Will Aid Maryland Taxpayers

ANNAPOLIS, Md. – An estimated 900,000 Maryland taxpayers will get state tax refund checks this year and most will receive them earlier than last year.

For the first time, the state's auditors can correct the typical errors many taxpayers make by working them out with one of two computers – an IBM 360/30 or a 360/40 – operated by the Maryland comptroller's department. The computers simultaneously can assist in different audits on each of 10 terminals now in operation while also doing work for other state agencies in Annapolis.

"Based on our initial results with the terminals," Maryland Comptroller Louis L. Goldstein said, "we expect to have all the refunds in the mail by July."

In trial runs this year, auditors have averaged two minutes to straighten out a return. Last year, because the records were accumulated throughout the day, then taken in batches of 5,000 to the computer in the evening for processing; it often took several weeks before a return was completely processed.

Armed with the original return and a computer listing of possible errors, the tax auditor first checks that the return information was properly entered into the computer. He then investigates possible errors by typing changes on the IBM 2266 terminal keyboard and having the computer recalculate the return.

For example, if it is believed the taxpayer used the wrong tax table in computing his return, the auditor would tell the computer the proper table to use and to reprocess the information.

"Only about 25% of the returns have to be corrected – an improvement of better than 5% over last year," Goldstein said. "The mistakes are usually not intentional and as often as not result in an increased refund."

The majority of the returns are error-free and are automatically audited and processed by the computers. These returns usually have refund checks issued within three days after processing is begun.

"With its new streamlined operation, the biggest delay is getting the mail opened and the returns into the system," explained Benjamin F. Marsh, chief of the income tax division.

Maryland Comptroller Louis Goldstein and Emily R. Last, one of the designers, look over the state's new tax aid.

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1st in frequency . . .

but lowest in CPM . . . it's

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Computerworld is now 2nd highest in its field, measured by total lineage in three consecutive months — based on December 1968, January and February 1969 surveys of the leading computer-oriented publications.

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Computerworld is the only weekly publication serving the computer community — the only publication to keep pace with the fast-moving industry, find the only publication which shows you to get your ad out to the computer industry within a week. No long delays from conception to exposure.

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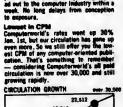
Computerworld's rates went up 20% Jan. 1st, but our circulation has gone up even faster, so we still offer you the lowest CPM of any computer-oriented publication. That's something to remember — considering Computerworld's all paid circulation is now over 30,000 and still growing rapidly.

CIRCULATION GROWTH over 30,000



MARKET FACTS:

$11 billion was spent in 1968 for digital computers, peripheral equipment, software, supplies and supporting services. The 1969 expenditure is expected to top $12 billion. Most of this business comes from the users of 67,000 computer systems installed in the U.S. at 22,600 customer locations. Systems managers and software staff personnel are the principal influences on deciding brands to buy.

And what Computerworld offers for this market has helped other advertisers where our competition couldn't.

If you'd like more detailed information, contact our local representative or write to: Noel Wilder, 60 Austin Street, Newton, Mass 02160.

COMPUTERWORLD

80 lines per second!

Clevite's new hardcopy electrostatic printer zipped out the facing page in 1.8 seconds flat. That's up to seven times faster than most printers on the market.

Eighty lines per second . . . 412,000 characters per minute . . . 4800 lines per minute. No matter how you figure print-out speed, dollar for dollar Clevite 4800 is far and away the fastest and most economical. It's four to seven times faster than most line printers . . . ten to twenty times faster than usual photographic hardcopy techniques. No other print-out system is even in the same ball park.

Words. And pictures.

Clevite 4800 handles both alphanumerics and graphics. Simultaneously. It will reproduce words, numbers, drawings, charts and graphs. Paper is an easy-to-file 8½" wide and page height is infinitely variable up to the full 300' length of the paper supply roll!

More of the fonts you want.

Clevite 4800 generates a wide variety of fonts from the smallest matrix on up. In an equally wide variety of weights, sizes and styles.

Archival quality.

Clevite 4800 uses a special, high-contrast paper. The electrostatic print-out won't smear. And the paper won't curl, yellow or get brittle in storage. You can write on it with ball point pen, pencil, felt-tip or whatever.

The sound of silence.

Clevite 4800 is an electrostatic printer. So it is quiet. (Think about that next time you're trying to make yourself heard above a chorus of impact-line printers.) And no impact means less wear and tear on the printer, less maintenance and downtime.

Beyond the computer.

Clevite 4800 has uses beyond the computer. In communications it can replace banks of teletypes and prints out data transmitted by telemetry, radio microwave and/or land lines. And it prints out graphic displays from CRT's using a TV raster display memory. The Clevite 4800 whips out full pages of alphanumerics and graphics as fast as signal sources can feed it. You may have other application ideas. Let's kick them around.

A word from the sponsor.

Clevite 4800 is based on proprietary equipment and proprietary paper. There is nothing else quite like it. It's faster, more versatile, quieter and more dependable. Yet, the Clevite 4800 printer's low price will surprise you. Let's talk soon. Clevite Corporation, Graphics Group, 37th and Perkins, Cleveland, Ohio 44114.

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Clevite 4800. The next generation of high-speed printers.

See Clevite 4800 at booth 805, Spring Joint Computer Conference in Boston.

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GE-225, 301, 1004, 1107 FOR SALE

IPS has several non-IBM systems for sale, included are a GE-225 8K tape system, CDC 3100 16K tape/card/printer system, H-200 8K 3-tape system, RCA 301 20K tape system, a Univac 1004-I, and a Univac 1107 85K tape/drum system. Most computers have card and printer I/O. We are looking for an RCA 301 40K tape system and a large H-200 tape system. For prices, delivery, and details, please write or call.

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Device Utilizes Numerics Only

WINDSOR LOCKS, Conn. – A low-cost terminal that produces hard copy and operates over dial-up telephone lines has been announced by TransCom, Inc.

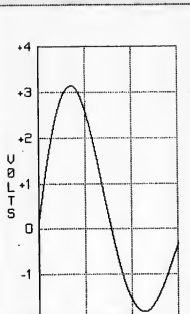
The RCT-203, which uses the TouchTone system and handles numeric only, can be used terminal-to-terminal or terminal-to-computer, the company said.

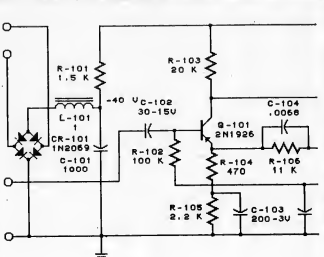
The complete unit, including modem, will sell for about $1,065, and lease for $25 a month, the company said. First deliveries are scheduled for May.

While a number of small, low-cost terminals have been announced lately, this is the first to produce hard copy, he said.

The copy is printed on 3/4-in. tape and provides instant verification and a permanent record, he said. The unit prints at 10 characters per second, he said.

But the company is not aiming at any particular market, the spokesman said. "We consider this a starter set for anyone who needs to transmit numeric data, and we'll leave it to the users to decide how they can use it," he said.





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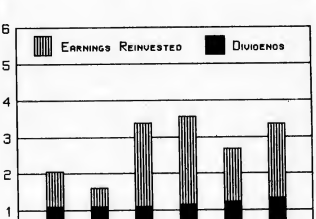

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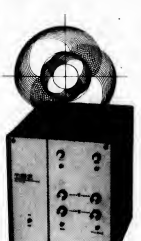
THESE CHARACTERS ARE N0MINALLY 10 UNITS HIGH BY 6 UNITS WIDE. THE HEIGHTS VARY FR0M 6 T0 14 UNITS. THE WIDTHS VARY FR0M 1 T0 9 UNITS.

THESE CHARACTERS ARE N0MINALLY 6 UNITS HIGH BY 5 UNITS WIDE. THE WIDTHS VARY FR0M 1 T0 7 UNITS.



What's new?

The high-speed TSP-12 plotter controller–only $2,500

The new TSP-12 Plotter-Controller is designed to reduce your initial cost, your terminal time, and your CPU time. Time-sharing enters a new, fast, economical phase with the TSP-12. Here is a Plotter-Controller that curves and angles pen or CRT display with a facility and accuracy you once had to pay more than twice the price to achieve. Easy to use, simple to plug in, the TSP-12 interfaces with Teletypes or 2741 Terminals equipped with 103 Series "Data-phones," 101C data sets or acoustical couplers. Sub-routines ready to go in FORTRAN and BASIC. Ask us — we'll show you how to share computer time fast, frequently and for far less.

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Driven by an IBM 1130, the pattern-grader plotter/cutter moves across a drawing board.

New System For Pattern Grading Uses An IBM 1130

NEW YORK — A pattern grading system developed to speed the process of sizing and producing graded patterns for the garment industry has been developed and offered for purchase or as a service by Graphic Technology Corp., a division of the Simplicity Pattern Co., Inc.

The system operates on an IBM 1130, which drives a plotter/cutter and a digitizer (both developed by Gerber Scientific Instruments). The digitizer, a device that converts graphic material into digital signals suitable for computer input, provides the ability to trace any drawing or pattern by hand as direct computer input. The plotter/cutter produces the output master patterns in all the graded sizes desired and cuts them for immediate copying. Patterns can be produced in any combination of sizes, half-sizes, and size groups that a customer might desire.

The digitizer can convert all the information on the pattern, even a signature, if present, into computer-acceptable input. This information is processed by the software developed by the company, and data is generated to produce the master patterns.

In addition, the system can produce several reports including a pattern analysis report (see example) containing the precise amount of fabric needed for each pattern size; the number of inches of stitching required to make the item; and fabric usage projections based on combinations or sizes to be produced.

The company with offices at 200 Madison Ave. here, offers the option of installing a complete system for the customer, on the customer's site, and tailoring a system for the customer's individual needs. Purchase and service prices are negotiable, based on the needs of each system, and each customer gets an individual analysis of his needs, a spokesman said.

$37,500 Communication Package, One of Three, Is O/S Compatible

SACRAMENTO, Calif. — Three new software packages for the IBM OS/360 have been released by the Computing Sciences Dept. of Aerojet-General Corp. The packages include Telcom 1, a communications package for generalized on-line use; Format 1, a report-writer and file-inquiry system; and an OS/MVT Accounting Routine.

Telcom 1

Telcom 1 provides general-purpose remote services using any type of IBM-supported terminal devices in any desired combination, an Aerojet spokesman said. Any of the services available may be obtained through any of the types of terminals, providing complete flexibility, he said. Currently, access to stored data files, data distribution between terminals and the central computer, desk-calculator capabilities, and message exchanging between terminals are available.

The package has been designed to serve Aerojet's needs and has been operational for some time here, he said.

The programs are modular in design. Module 1 consists of the terminal device interface, module II provides remote inquiry service, module III provides the data distribution, and module IV provides the desk-calculator capability. Modules II, III, and IV are optional.

The price for the total system is $37,500. Separately, module I is $15,000, module II is $12,500, module III is $5,000, and module IV is $5,000.

Format 1

Format 1 is a one-pass data retrieval and report generator. It permits the direct specification of report formats and the data desired in a brief job, the spokesman said. An experienced user can fully describe a complex report in about two hours, he said.

Through the use of a simple language, the user can request various types of computations, exception reporting, field selection, and report formatting, he said. Each report format is assigned a number and that report is then requested by number. Several reports may be prepared in a single pass of the data file and the output may be spooled onto tape or disk, he said. This package also has been in use for some time at Aerojet, he said.

The package sells for $9,000.

MVT Accounting Routine

The MVT Accounting Routine is tailored for multiprogramming with a variable number of tasks under OS/360 and provides timing and usage data for computer customer billing and computer installation usage analysis, the spokesman said.

The routine is operational under Version 15/16 of OS at Sacramento and is maintained and upgraded as new releases are implemented, he said.

The accounting routine accumulates information from the job control language, including job name, program name, dates, run times, region sizes, CPU-time used, counts of devices used, and up to 50 characters of accounting identification from the JOB statement, he said.

The routine produces four outputs: a printout of the current status of each account in the system via the WRITE LOG command, displayed record images for backup, a summary of the data for each program being run, and a pacing message of job start and completion times which is displayed on the console.

Accounting routines for the Primary Control Program and multiprogramming with a fixed number of tasks (MFT) also are available, he said.

The total accounting package sells for $6,000.

The first two packages are available for either MFT or MVT systems. The Telcom 1 package requires 65K memory on a Model 30 or higher and supports mixtures of the IBM 2740, 1050, and 2260 terminals. Format 1 requires a Model 40 with at least 128K and three tapes or disks. The MVT is machine independent, provided OS can be run in the environment.

Cucon; Cusip Conversion Aid

NEW YORK — Conversion to the new standard securities industry coding system can be aided by the use of Cucon, a new package from Syntactics, Inc.

Cusip Standard

The package is based on the standard coding technique approved last year by all segments of the banking and financial industry. Recommended by the American Bankers Association Committee on Uniform Security Identification Procedures (Cusip), the system is based on an eight-character code which permanently and uniformly identifies both the issuer of the security (corporate, municipal, government, etc.) and the particular issue. At present, more than 65,000 issuers and over one million issues have been assigned Cusip numbers and uniform Cusip descriptions and abbreviations.

The problem of conversion for the thousands of institutions involved, some of which hold over 100,000 issues, has created the need for a good conversion program.

The system developed by Syntactics provides a group of programs which will translate a firm's naming and numbering system to the Cusip standard. Cucon creates a cross-reference between the user's codes and the Cusip security number. The package is service-oriented and provided on a fixed-price basis whereby the price is determined by the amount of service required.

The program also will provide Cusip numbers for untraded securities, further enhancing compatibility, according to Alan D. Kahn, company president. The developer, a local firm with offices at 145 E. 52nd St., spent a great deal of research time planning for the expected deviations among the differing systems now in existence, Kahn told *Computerworld*. He feels that the package will accommodate almost any user's existing system.

Payroll Written in Cobol for 360

CHICAGO — A new payroll package written in Cobol for the IBM 360 has been developed by Mastech Computer Systems, Inc.

The package, called Mascheck, operates on any 360 from the Model 25 up, and can readily be adapted to other manufacturer's equipment, a Mastech spokesman said. Mascheck is designed to handle complex multiplant, multiunit payrolls, and provides routines for all federal, state, and municipal taxes with a minimum of input, he said.

The package sells for $9,500 including all documentation, one week's educational guidance in use of the system, and one year's maintenance, he said. The cost for the annual tax update is $125 per year after the first year.

Credit System Readied for Retailers

CHERRY HILL, N.J. — A new system developed for the nation's leading retailers and chains, the Charge-Serv system for computerized processing of accounts receivable, has been announced by Arthur S. Kranzley and Co.

Development of the new system was undertaken in response to the retailing industry's increasing demands for information processing and tight credit control, according to Arthur S. Kranzley, company president. He said, however, that the system also would be useful to auto rental chains, oil companies, hotels, and restaurants.

System features include: audit trails, charge card preparation, bad balances, credit limits, and delinquent account aging.

The system is an interrelated group of computer programs that facilitates credit control and performs the charge-card accounting functions. Written in Cobol for the IBM 360/30 with at least 65K core storage, the programs also can run on other manufacturers' equipment and can readily be modified to meet changing demands, a spokesman said.

Documentation furnished includes a magnetic tape or card deck for reproduction, and system and run books for each program, he said. Copies of computer-related forms for which substantial design effort is normally required are provided as part of the system. To assure successful installation, the company provides a period of on-site guidance to each user at no charge. Specific program modifications required by users are made by Kranzley personnel at preferential rates, the spokesman said.

The company, located at 383 Kings Highway here, also developed the Bankserv credit-card accounting system.

Correction

NEWTON, Mass. — In a recent software article [CW April 16] we printed an article about a new generalized retrieval system known as GRS. We printed the company's name incorrectly. The actual name is Informetrics Science Inc., 18 New Hempstead Rd., New City, New York 10956.

A common scene at Boston's Logan Airport warehouse of Intercontinental Air Freight, Inc. last month was workmen preparing overseas shipment of computer hardware manufactured by *Digital Equipment Corp.*, Maynard, Mass. Five of DEC's large computer systems, PDP-10s, were shipped to Europe and Canada.

IBM Has Record First Quarter, Outright Sales Volume Dropped

ARMONK, N.Y. – IBM has announced record first quarter earnings and revenue for the year.

For the three months ended March 31, 1969, worldwide consolidated net earnings of IBM were $205,960,914 after taxes, according to Thomas J. Watson, Jr., chairman of the board.

Earnings per share were $1.82 on the 113,116,613 shares outstanding. This compares with net earnings after taxes for the corresponding 1968 period of $173,077,331, equivalent to $1.54 per share on 112,372,748 shares, the number of shares outstanding March 31, 1968, adjusted for the 100% stock split effected May 9, 1968.

Net earnings before taxes amounted to $437,560,914 compared with $368,177,331 in the corresponding period of 1968.

Consolidated gross income for the three months ended March 31, 1969 amounted to $1,684,718,577 compared with $1,468,769,642 in the corresponding 1968 period.

In his letter to stockholders, Watson said, "Throughout 1968, stockholders' attention was directed to the fact that increases in gross income and earnings were abnormally high because of the unusually high level of outright sales of data processing equipment.

"We stated that IBM's data processing business is primarily rental and that outright sales, unlike rentals, increase current income at the expense of future periods.

"In our 1968 Annual Report we said that we did not expect the high level of outright sales to continue, and that should there be a marked decline in purchase activity during future reporting periods, income comparisons would then appear unfavorable.

"During the first quarter of 1969, total gross income increased 13.8% while net earnings increased 19.0% over the comparable period last year.

"However, for the first time since the beginning of 1968, the proportion of outright sales in our total volume declined. While it is impossible to predict the future, we believe that this lower but more normal level is likely to continue and, if it does, income comparisons for future 1969 reporting periods will be less favorable than for the first quarter."

Business Machine Imports And Exports Rose in '68

WASHINGTON, D.C. – United States foreign trade in business machines in 1968 reached new highs of $835.0 million in exports and $258.8 million in imports, the U.S. Department of Commerce reported on April 8.

Exports were up 5.4% over the $792.5 million of 1967, and imports were up 14.9% over the $225.2 million for the same year, according to the Department's Business and Defense Services Administration (BDSA).

As in 1967, electronic computers and parts accounted for the largest segment of exports, 58%, for a total of $486.5 million in 1968. Major customers included West Germany, United Kingdom, Canada, France, and Japan.

Bookkeeping and accounting machines and parts were second, as in 1967, comprising 11% of the exports, or a total of $88.3 million in 1968. The leading markets were Canada, Japan, United Kingdom, France, and West Germany.

Photocopying equipment and parts totaled $57.1 million or 7% of total exports.

Statistical machines used with punch card or tape, including auxiliary machines, shared 6% of exports at $54.1 million.

Import Statistics

Data processing machines, including punch card machines, tape recorders, and other automatic data processing machines totaled $7.1 million or 3% of imports in 1968, decreasing 39% from 1967.

Parts for all office machines, except typewriters and duplicating machines, totaled $50.3 million or 19% of all imports. Leading suppliers were Canada, United Kingdom, France, Japan, and West Germany.

SDS Earnings Climb 56% Revenues Increased 25%

LOS ANGELES, Calif. – Scientific Data Systems reported record first quarter earnings for the three month period ended March 31.

Company revenues rose 25% to $26,366,000 from $21,081,000 for the same period last year. Earnings before taxes increased 56% to $5,003,000 from $3,217,000 in 1968; net earnings per common share increased 43% from $.28 to $.40.

Per share earnings are based upon the average number of common shares outstanding during the period and are adjusted for the three-for-two stock split distributed June 1968.

SDS President Max Palevsky said, "Our first quarter results are indicative of the growing acceptance of SDS products and services in the computer marketplace and we are looking forward to continued progress in all aspects of our business."

Burroughs First Quarter Earnings Increase 32%

Burroughs Corp. reported a 32% increase in earnings for the first quarter of 1969 and a 16% increase in revenue over last year's first quarter. The 1969 first quarter was the highest first quarter in both earnings and revenue in the company's history, according to Ray. W. Macdonald, president.

Macdonald also said that worldwide incoming orders continued at high levels with orders for commercial equipment in the 1969 quarter exceeding last year's position while government contracts showed a decline. Macdonald further indicated that worldwide backlogs continued increase since the beginning of the year.

Indicated net earnings for the three months ending March 31, 1969, were $7,607,000, compared with $5,771,000 in 1968. Earnings per share, based on the two-for-one stock split approved by the shareholders on March 26, 1969, with record date of March 28, 1969, were 46 cents based on an average of 16,517,219 shares outstanding.

This would compare with 35 cents for the first quarter last year on an average of 16,400,126 shares outstanding. Earnings per share based on the number of shares outstanding prior to the two-for-one stock split were 92 cents for the first quarter of 1969 on an average of 8,258,610 shares outstanding, compared with 70 cents for the 1968 quarter with an average of 8,200,063 shares outstanding.

Allstate Buys Computing Software Stock

LOS ANGELES – Whittaker Corp. and Computing Software, Inc. have announced that Whittaker has sold subordinated notes of Whittaker that are convertible into 180,000 of the 1,100,000 shares of Computing and Software common stock currently owned by Whittaker.

Computing and Software currently has 3,042,012 shares of common stock outstanding.

The purchaser in the transaction is Allstate Insurance Co., Northbrook, Ill.

As a result of this purchase, Allstate also has an option, exercisable prior to May 12, 1969, to purchase additional amounts of subordinated notes from Whittaker, convertible into either 60,000 or 920,000 additional shares of Computing and Software common stock. All figures reflect the recent two-for-one split in Computing and Software common shares.

Under the transaction Allstate agreed to purchase from private individuals a security convertible into 60,000 shares of Computing and Software common.

An Allstate spokesman indicated that his company's purchase is for investment purposes, and that no decision has been made whether to exercise the additional options.

The spokesman added that beyond these transactions, Allstate has no intent of making further purchases of Computing and Software common stock.

Sanders Declares Dividend

NASHUA, N.H. – The regular quarterly dividend of 7.5 cents per share has been declared by the board of directors of Sanders Associates, Inc. The dividend is payable April 14 to stockholders of record April 2.

Company president Royden C. Sanders, Jr., stated that "following our established policy, the major portion of earnings for the fiscal year is to be reinvested in the company's expansion in the commercial and military fields."

He said the company is continuing to increase its penetration of the electronic data communications and data management markets.

Hudson and Telex Agree To Joint Tape Leasing

NEW YORK – Hudson Leasing Corp. and The Telex Corp. have entered into an agreement to lease computer tape drives jointly, the company announced.

According to the terms of the agreement, Hudson will purchase a half interest in tape drives manufactured and leased by Telex.

This line of tape drives is sold or leased to end users as direct replacements or additional equipment in certain IBM computer systems, Telex said.

Manufactured by Telex's Computer Products division in Tulsa, Okla., the line includes a variety of models of a basic machine which corresponds to the equivalent IBM drives used with second and third generation computer mainframes.

Scan-Optics Financed

EAST HARTFORD, Conn. – Scan-Optics, Inc. a manufacturer of optical character recognition equipment has completed private financing by accepting a one-half million dollar investment from the Travelers Insurance Companies of Hartford, Conn.

The Optical Character Reader that the company plans to manufacturer is presently in the developmental phase.

ITT Meeting Postponed

NEW YORK – International Telephone and Telegraph Corp. has announced the postponement of the date of the annual ITT stockholders meeting to 2:00 p.m. Tuesday, June 26, 1969, at the Sheraton Cadillac Hotel in Detroit, Mich. The meeting had been scheduled for May 14.

The new date will facilitate the preparation and filing of financial statements, proxy material, and related data in connection with the proposed affiliation with the Hartford Fire Insurance Co. which is subject to the approval of both the ITT and the Hartford shareholders.

The record date for the June 26 meeting is April 28, 1969.

Leasing Sector Highlights Generally Dropping Market

By A.B. Williams
CW Staff Writer

Computer stocks are still taking it on the chin, particularly those in the Leasing sector.

During the week ended April 18, the index of Leasing stocks was off 7.23 points (7.08%), featured by declines of 20% or more in Computer Leasing, down 4-3/8 (21%) at 18, Datronic Rental, down 2-1/4 (22%) at 8, and System Capital Corp., down 5 (23%) at 17.

The two gains in the Leasing group were small.

Elsewhere, only the Software group rose.

Some other major percentage losers were Scientific Control, down 4 (14%) at 25; Alphanumeric, down 7 (19%) to 35-1/2; Scan Data off 11% (7 points) at 59; Informatics, losing 3-1/4 (14%) to 21; and Cognitronics, which yielded 3-1/2 (13%), closing at 23.

On the plus side, the only feature was TBS Computer Centers, which rose 4-1/2 (26%), closing at 21-1/2.

Honeywell-Collins Off

Collins Radio and Honeywell have ended negotiations concerning their proposed merger. No reason was given. Since both companies have major positions in aerospace and computers, possible antitrust action might be a reasonable deduction.

Collins management continues to be opposed to Electronic Data Systems' recent takeover proposal.

Odd-Lotters

"The odd-lotters are always wrong at the turn of the market." This oft-quoted (and often-useful) theory simply states that market highs are accompanied by odd-lotters buying most heavily, while lows (as measured by one of the various market indicators) go along with particularly heavy odd-lot selling.

This looks quite natural – the little guy follows an established trend, while big money may be more astute (or more capable of reversing a trend.)

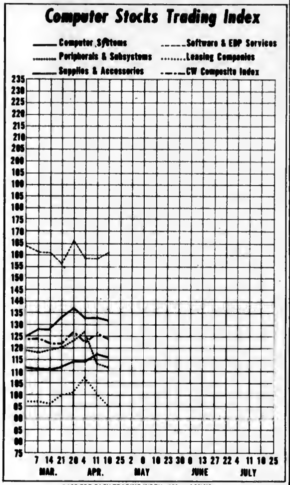
While no attempt is made to correlate this hypothesis to the movements in individual issues (each of which may be in its own special situation), we wonder if it might not be true of stocks which have been heavily sold (on balance) by odd-lotters over the past few weeks.

The last five weekly closes have shown heavy odd-lot sales-to-purchases ratios in GE (at 3 to 1), Sperry Rand (nearly 2-1/2 to 1), Ampex (2 to 1), and Control Data (at 1-1/2 to 1). All are in the old-favorite category for individual and institutional holding; Sperry and Control Data have also been big with the floor traders.

Not one of the four has shown a major price break over the past five weeks (the biggest net decline is in Control Data, off about 4%), while GE, the most heavily sold, has actually had a slight price improvement.

The two best week-to-week rises (2-5/8 in both GE and Sperry) were in weeks when the most odd-lot sales were recorded.

This might be food for thought. It could at least show that the odd-lotters have become smart enough to sell on strength.



BASE FOR EACH TRADING INDEX: 100 as of 3/1/69

Computers: What's their future?

The special Review and Forecast issue of *EDP Industry Report*, just published, contains a valuable analysis of the explosive computer industry at a time when there are significant transitions occurring in the EDP market.

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COMPUTER STOCKS: TRADING SUMMARY

WEEK ENDED APRIL 18, 1969

COMPUTER SYSTEMS

EXCH	1969 RANGE	CLOSING PRICE		WEEK NET CHANGE	WEEK % CHANGE
N	259-222	246 3/4	BURROUGHS CORP	- 11	-4.P7
N	67- 48	62	COLLINS RADIO	- 2 1/4	-3.50
N	148-130	136	CONTROL DATA CORP	+ 2 3/4	2.R3
A	171-148	155	DIGITAL EQUIPMENT	- 2	-1.27
N	25- 18	18 3/4	ELECTRONIC ASSOC.	- 7/8	-4.46
N	92- 85	91	GENERAL ELECTRIC	- 5/8	-.68
N	89- 76	84	HEWLETT-PACKARD CO	+ 3/8	.45
N	129-109	138	HONEYWELL INC	+ 4 1/4	5.38
N	314-293	308 1/4	IBM	- 4	-1.28
N	129-108	124	NCR	- 3 1/2	-2.75
N	46- 41	43 7/8	RCA	+ 1/8	.29
N	49- 38	39 3/8	RAYTHEON CO	- 5/8	-1.56
O	35- 29	27 1/2	SCI. CONTROL CORP	- 1 1/2	-5.17
N	117- 83	112 3/4	SCIENTIFIC DATA	- 1 1/4	-1.12
N	53- 44	49 7/8	SPERRY RAND	- 2 5/8	-5.08
A	31- 27	33	SYSTEMS ENG. LABS	+ 2 1/2	8.22

PERIPHERALS & SUBSYSTEMS

EXCH	1969 RANGE	CLOSING PRICE		WEEK NET CHANGE	WEEK % CHANGE
N	75- 65	73 1/2	ADDRESSOGRAPH-MULT	+ 1 3/4	2.44
O	46- 38	37 1/4	ALPHANUMERIC	- 6 3/4	-15.34
N	39- 35	38	AMPEX CORP	- 3/8	-.98
O	19- 15	17	BOLT, BERANEK & NEW	- 3/4	-4.23
N	16- 12	12 7/8	BUNKER-RAMO	- 1/4	-1.98
A	35- 31	38 1/4	CALCOMP	- 1 5/8	-4.35
O	38- 27	26	COGNITRONICS	- 2	-7.14
O	13- 12	14 1/4	COMPUTER EQUIPMENT	+ 5/8	4.59
A	26- 16	17 7/8	DATA PRODUCTS CORP	- 3/8	-2.05
O	20- 17	16 3/4	DIGITRONICS	- 1/2	-2.98
O	62- 47	56 1/2	ELECTRON MEMORIES	---	----
O	12- 11	11 1/4	FABRI-TEK	- 3/4	-6.25
O	37- 29	32	FARRINGTON MFG	- 2	-5.88
O	21- 15	17	INFORMATION DIS	---	----
A	34- 20	24 7/8	MILGO ELECTRONICS	+ 5/8	2.58
A	79- 59	71 1/4	MOHAWK DATA SCI.	+ 1/4	.35
O	98- 69	69	OPTICAL SCANNING	- 5	-6.76
O	28- 25	24 3/4	PHOTON INC.	- 1	-5.88
A	35- 27	31 1/2	POTTER INSTRUMENT	+ 1 1/8	5.75
O	71- 65	64 1/2	RECOGNITION EQUIP	- 3 1/2	-5.19
A	22- 18	22 3/8	RIXON ELECTRONICS	+ 2 1/8	11.64
N	60- 48	43 1/8	SANDERS ASSOCIATES	- 2 1/4	-4.96
O	85- 59	59	SCAN DATA	- 7	-10.61
O	36- 22	27 1/2	TALLY CORP.	+ 1	3.77
N	278-241	242	XEROX CORP	- 5 5/8	-2.27

SUPPLIES & ACCESSORIES

EXCH	1969 RANGE	CLOSING PRICE		WEEK NET CHANGE	WEEK % CHANGE
O	58- 37	39	ACME VISIBLE	- 1/2	-1.27
N	21- 18	17 5/8	ADAMS-MILLIS CORP	- 7/8	-4.75
O	27- 23	26	BALTIMORE BUS FORM	- 1/2	-1.89
A	22- 19	22 3/4	BARRY WRIGHT	- 7/8	-4.85
O	44- 35	36 1/4	DATA DOCUMENTS	- 1	-2.68
N	42- 37	41	ENNIS BUS. FORMS	---	----
N	82- 65	79	MEMOREX	---	----
N	106- 92	100 1/2	3M COMPANY	- 2	-1.95
O	33- 25	32	MOORE BUS FORMS	- 1/2	-1.54
N	46- 37	38 1/2	NASHUA CORP.	- 1/2	-1.28
O	43- 40	41	REYNOLDS & REYNOLD	- 3	-6.82
O	28- 24	28 3/4	STANDARD REGISTER	+ 1	3.68
N	33- 29	29 3/4	UARCO	+ 1/4	.85
A	20- 14	16 1/2	WABASH MAGNETICS	+ 1/4	1.54
O	32- 29	35 1/2	WALLACE BUS FORMS	+ 1/4	.75

SOFTWARE & EDP SERVICES

EXCH	1969 RANGE	CLOSING PRICE		WEEK NET CHANGE	WEEK % CHANGE
O	14- 9	9 1/4	ADVANCED COMP TECH	---	----
O	36- 31	35	APPLIED DATA RES	---	----
O	12- 8	10 3/4	ARIES	+ 1/4	2.38
A	73- 64	72	AUTOMATIC DATA PRC	- 1/2	-.69
O	10- 9	8 3/4	AUTO SCIENCES	- 1	-10.26
O	17- 12	12 1/2	BRANDON APPL SYS	---	----
A	28- 15	15 5/8	COMPUTER APPL	- 7/8	-5.30
O	16- 12	12	COMPUTER ENVIRON	---	----
O	47- 34	38	COMPUTER NETWORK	- 4	-9.52
N	65- 52	62 3/4	COMPUTER SCIENCES	+ 2 1/8	3.51
O	35- 31	29 1/2	COMPUTER USAGE	- 3 1/2	-10.61
A	92- 45	47	COMPUTING & SOFT.	+ 1	2.17
O	24- 15	15 1/2	DATAMATION SERVICE	+ 2	14.81
O	17- 11	14	DATATAB	- 1/2	-5.45
O	15- 9	9 1/4	DIGITEK	- 1	-9.76
A	36- 27	29 7/8	ELECT COMP PROG	- 1 7/8	-5.91
O	32- 20	21	INFORMATICS	- 3 1/4	-15.40
O	28- 4	6	MATRIX CORP.	- 1	-14.29
O	22- 11	14 1/2	NAT COMP ANALYSTS	+ 2 1/2	20.85
A	54- 24	29 1/4	PLANNING RESEARCH	+ 1/8	.43
O A	11- 8	9 3/4	PROGRAMMING & SYS	+ 1/4	2.63
O	15- 6	6 3/4	SOFTWARE SYSTEMS	+ 1/4	5.8?
O A	37- 17	18	STRATEGIC SYS	---	----
O	21- 11	21 1/2	TBS COMP CENT INC.	+ 4 1/2	26.47
O A	12- 6	8 3/4	UNITED DATA CENTER	- 1/4	-2.78
O	140- 8	96	UNIVERSITY COMP	- 3	-3.03
O A	38- 28	29 1/2	URS SYSTEMS	- 5 1/4	-15.11
O A	30- 13	15	U.S. TIME-SHARING	---	----

LEASING COMPANIES

EXCH	1969 RANGE	CLOSING PRICE		WEEK NET CHANGE	WEEK % CHANGE
O	40- 37	41 1/2	BOOTHE COMPUTER	+ 3/4	1.84
O	18- 18	18	COMPUTER EXCHANGE	- 1/2	-4.76
A	33- 18	18	COMPUTER LEASING	- 4 5/8	-19.55
O A	14- 8	9 1/4	CONT COMPUTER	- 1 1/4	-11.90
O	12- 10	12 5/8	CYBER-TRONICS	---	----
A	57- 44	43 1/4	DATA PROC. F & G	- 3 3/4	-7.98
O	11- 9	9 1/4	DATRONIC RENTAL	- 1	-9.76
A	49- 42	43 1/4	DEARBORN COMPUTER	- 1 1/2	-3.35
O	11- 10	11 1/8	DPA. INC	- 1 1/8	-9.18
A	45- 38	29 1/4	GRANITE EQUIPMENT	- 2	-6.48
A	27- 19	20 5/8	GREYHOUND COMPUTER	+ 3/8	1.87
A	139- 56	41 7/8	LEASCO DATA PROC	- 1/4	-.59
O	9- 7	7 1/4	LECTRO COMP LEAS	- 1/4	-3.33
A	54- 37	42 1/4	LEVIN-TOWNSEND CMP	- 2 1/8	-4.79
O	12- 5	5 1/4	LNC DATA, INC	- 1/2	-8.70
O	14- 9	2 3/4	MANAGEMENT ASSIST	- 1 1/8	-11.39
A	39- 30	32 5/8	NATIONAL EQUIPMENT	+ 1 1/4	4.02
O A	12- 8	8	NCC LEASING	---	----
A	45- 29	29 5/8	RANDOLPH COMPUTER	- 1 5/8	-5.24
O	54- 17	17	SYSTEM CAPITAL	- 5	-22.75
A	26- 21	23	U.S. LEASING	- 1/2	-2.13

New Registrations

PENTA COMPUTER ASSOCIATES, INC., 445 Park Ave., New York, N.Y. 10022, a company engaged in providing consulting, systems analysis, and programming services to commercial and governmental users of electronic data processing equipment, filed to register 150,000 shares of common stock. Proceeds, at $10 per share maximum, intended for expansion of the company's software services, development of computer hardware systems, and payment of a loan. The underwriter is Kordich, Victor & Neufeld.

COGAR CORP., 114 N. Main St., Herkimer, N.Y. 13350, a company that intends to engage in the development and production of original equipment for computers and computer-related equipment, and in the development of systems for handling information, filed to register 440,000 shares of common stock. Proceeds, at $20 per share, intended to construct and equip a plant, to defray operating costs, and to conduct research and development. The underwriter is First Albany Corp., 90 State St., Albany, N.Y. 12207.

STERLING COMPUTER SYSTEMS INC., 3305 Montrose Blvd., Houston, Texas 77006, a company engaged in the business of providing computerized data processing services for business and industrial concerns, filed to register 240,000 shares of common stock, with proceeds at $6 per share. The underwriter is Cantor, Fitzgerald & Co., Inc., 232 N. Canon Drive, Beverly Hills, Calif. 90210.

REEVES INDUSTRIES, INC., 15 Green Pasture Road, Danbury, Conn., a company engaged in developing, manufacturing, and marketing magnetic tapes, filed to register 750,000 shares of common stock with proceeds at $7.75 per share maximum. No underwriter involved.

SYCOR, INC., 117 N. First St., Ann Arbor, Mich. 48108, a company engaged in the development of programmable terminal systems which could be adapted to a variety of commercial uses and which would have a low operating cost, filed to register 250,000 shares of common stock. Proceeds, at $20 per share maximum, intended for engineering and product development; for equipment, tooling, and leasehold improvements; and for land for a new plant. The underwriter is Burnham and Co., 60 Broad St., New York, N.Y. 10004.

SIMULATORS, INC., 3611 Commercial Ave., Northbrook, Ill., a company engaged in the research, development, production, and sale of analog computers, component parts of such computers, analog-to-digital converters, temperature detectors, and electronic digital voltmeters, filed to register 200,000 shares of Class A common stock. Proceeds, at $10 per share maximum, intended for marketing expansion, for equipping and operating two computer centers with demonstrators, and for purchasing equipment and inventory. The underwriter is Sterman & Gowell Inc., 120 Water St., Boston, Mass. 02109.

INTERDATA INC., 2 Crescent Place, Oceanport, N.J. 07757, a company engaged in the design, manufacture, and sale of small digital computers and data communications systems, filed to register 300,000 shares of common stock. Proceeds, at $12.50 per share maximum, intended for repayment of a bank note, and addition to working capital. The underwriter is Gregory & Son, 40 Wall St., New York, N.Y.

BRADFORD COMPUTER & SYSTEMS, INC., 1700 Broadway, New York, N.Y. 10019, a company engaged in providing its clients with technical service related to the design and development of computer and clerical systems, filed to register 225,000 shares of common stock. Proceeds, at $12 per share maximum, intended for general corporate purposes. The underwriter is Kidder, Peabody & Co. Inc., 20 Exchange Place, New York, N.Y. 10005.

E.L.I. COMPUTER SYSTEMS INC., 2 Pennsylvania Plaza, New York, N.Y. 10001, a company engaged in providing a variety of services to present and prospective users of electronic data processing equipment, filed to register 160,000 shares of common stock. Proceeds, at $10 per share maximum, intended to finance development and marketing of proprietary and nonproprietary systems in software development service, and to provide administrative expenses. The underwriter is Weis, Voisin, Cannon, Inc., 111 Broadway, New York, N.Y. 10006.

CONTEMPORARY INSTITUTE, INC., 428 Forbes Ave., Pittsburgh, Pa. 15219, a company engaged in operating technical schools which offer courses in IBM computer programming, systems operation, and keypunch operation, filed to register 190,000 shares of common stock. Proceeds, at $7.75 per share maximum, intended for additions to working capital and general corporate purposes. The underwriter is Arthurs, Lestrange & Co., 2 Gateway Center, Pittsburgh, Pa. 15222.

Earnings Reports

COMPUDYNE CORP.

3 Months Ended March 31

	1969	a1968
Revenue	$2,590,130	$1,153,596
Earnings	213,623	25,782

a—Not restated to include companies acquired in 1968 on a pooling-of-interest basis.

BURROUGHS CORP.

3 Months Ended March 31

	1969	1968
Rev.	$140,396,000	$163,075,000
Earnings	7,607,000	5,771,000
aShr Ernd	.46	.35

a—Reflects 2-for-1 stock split payable April 28, 1969.

HONEYWELL INC.

3 Months Ended March 31

	1969	1968
Revenue	$325,000,000	$266,400,000
Earnings	11,900,000	9,051,000
Shr Ernd	.80	.61

NATIONAL CASH REGISTER

3 Months Ended March 31

	1968	a1968
Revenue	$256,794,338	$238,682,190
Earnings	6,106,995	5,654,263
Shr Ernd	.59	.59

a—Restated to include operations of Electronic Communications Inc., which was acquired in September 1968. The figure also reflects the federal surtax.

IBM

3 Months Ended March 31

	1969	b1966
Rev.	$1,884,718,577	$1,480,769,842
Earnings	205,960,914	173,077,331
Shr Ernd	1.82	b1.54

a—Adjusted to reflect federal surtax. b—Adjusted for a 2-to-1 stock split effective May 9, 1969.

NATIONAL COMPUTER ANALYSTS, INC.

Year Ended Dec. 31

	1968	1967
Revenue	$1,313,004	$1,070,938
Earnings (loss)	(a115,240)	146,429
Shr Ernd (loss)	(.14)	b.23

a—Includes non-recurring start-up costs of company's proprietary system, Quick-Draw. b—Adjusted to reflect 5-for-2 stock split in Dec. 1988.

WABASH MAGNETICS, INC.

3 Months Ended March 31

	1969	1868
Revenue	$6,032,985	$3,964,976
Earnings	242,702	a179,621
Shr Ernd	.14	a.10

a—Restated by company to reflect potential dilution and federal surtax if and when conversion privileges for preferred stock Series A are exercised.

STRUTHERS WELLS CORP.

3 Months Ended Feb. 26

	1968	1968
Revenue	$6,852,000	$5,056,000
Net Loss	285,000	384,000

Optical Reader Service Is Established

WINSTON-SALEM, N.C. – Wachovia Optimation Center, Inc. has been formed by The Wachovia Corp. of Winston-Salem and Corporation S., Dallas, to provide an optical reading input automation service to Wachovia Bank and Trust Co., and to other subscribers in the Southeast.

The Wachovia Corp. is the parent company of Wachovia Bank and Trust Co.; Corporation S is an affiliate of Recognition Equipment Inc. that offers its optical input automation service called Optimation to subscribers throughout the United States.

In June the new company will install an Electronic Retina computing reader that optically reads information from subscribers' documents and records that information on magnetic tape for immediate further computer processing.

Optimation Center subscribers will send typed or printed documents to the center where they will be optically read, with the information being captured on magnetic tape for entry into the subscriber's computers. The tape and the documents will be returned to the subscriber. Charges for using the service will be on a volume-based unit price per entry, the company says.

New Companies

Multiplex Systems Will Aim for Communications

HUNTINGTON, N.Y. – Multiplex Systems has been formed by Instrument Systems Corp. to develop and manufacture systems and equipment for use in the computer-communications and process-controls fields.

The new division represents ISC's first application of multiplexing techniques developed for the Passenger Entertainment and Service System on the Boeing 747 Superjet airliner, the company says.

According to Martin Slavin, president of the new division at 770 Park Ave., Huntington, programs will concentrate on the use of digital multiplexing techniques and the latest state of the art in microelectronics.

Data Processing Services Offered for Rochester

ROCHESTER, N.Y. – Unimed Computer Corp. has been formed to offer data processing services to medical, educational, and business groups.

Services will include systems analysis, design and implementation, surveys and feasibility studies, systems audits, review and development of documentation standards, programming, information services, and seminars.

Dr. Jerome Glazer has been named president of the new facility at 2479 Browncroft Blvd., Rochester, N.Y.

Company Will Consult On T/S Applications

PHILADELPHIA – Time-Sharing Enterprises, Inc. has announced its entry into the time-sharing applications area.

The company says it will assist firms in designing and implementing special time-sharing applications.

Alan G. Hammersmith, president, stated that "the many time-sharing systems available today offer a variety of capabilities and costs.

"Since we do not operate such a system, we are in an excellent position to select the best system for a given application."

Time-Sharing Enterprises also publishes the *Time-Sharing Industry Directory* and will shortly announce a new publication concerning time-sharing applications, the company says.

ACQUISITIONS

SAN MATEO, Calif. – URS Systems Corp. and Automatic Information Management of Encino, Calif., have jointly announced that URS and AIM have agreed to a URS purchase of 21% of the outstanding stock of AIM for cash, with an option to purchase the remaining outstanding stock prior to Dec. 31, 1971.

HAWTHORNE, Calif. – Electronic Memories, Inc., and Indiana General Corp. have jointly announced that the proposed agreement of consolidation between Indiana General and Electronic Memories has been approved by the directors of both companies. Under the terms of the consolidation, the common stock of Electronic Memories will be exchanged for common stock of the new company on a share for share basis and each share of common of Indiana General will be exchanged for 3/4 of a share of common and one share of $1.00-dividend convertible preferred stock of the new company.

Each share of preferred stock will be convertible into 1/3 share of common stock. Approximately 16% of Indiana General's outstanding common stock now owned by Electronic Memories will be cancelled in the consolidation and no shares of the new company will be issued therefore.

NEW YORK – United Data Centers and Computer Servicenters have entered into an agreement to combine their electronic data processing center networks. The contract calls for the exchange of 1.1 shares of United Data Centers' common stock for 1 share of Computer Servicenters' common stock. The agreement is subject to approval by the stockholders of Computer Servicenters, Inc. and the receipt of a favorable tax ruling.

Contracts

HAWTHORNE, Calif. – The Government Products Division of Electronic Memories, Inc., has received a contract in excess of $1 million from the Magnavox Corp., Fort Wayne, Ind., for Semstak core memory stacks. The award is for the DIFAR antisubmarine warfare navigational computer being produced by Magnavox.

LOS ANGELES – U.S. Systems & Software, Inc., has been awarded a contract by the Ground Systems Group of Hughes Aircraft, Fullerton, Calif., to perform data processing. The work is being done at U.S. Systems' management computer center, Anaheim.

FORT LEE, N.J. – Computer Modem Corp. has awarded a **contract to SYS Associates for the continuing development of the corporation's proprietary line of digital data transmission equipment.**

DALLAS – Michigan Blue Shield has signed a contract with Corporation S, an optical character recognition service company. Information from physician's claims will be optically read and recorded on magnetic tape for further computer processing.

TRENTON, N.J. – Metasystems Corp. has received a contract for $260,000 from the U.S. Army Data Field Systems Command to monitor the design and development of software for the Tactical Fire Direction System being developed for the Army by Litton Industries.

Computerworld '68

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Brooks Estimates $4 Billion Could Be Saved When Congress is Computerized

WASHINGTON, D.C. – Rep. Jack Brooks (D. Texas) estimated last week that savings resulting from computerizing Congress would exceed $4 billion annually, and slated hearings on his new bill designed to authorize the computerization.

Under Brooks' proposal, responsibility is given the Comptroller General of the United States to develop and maintain the computer capacity required by the House and Senate and the subordinate offices of the Congress.

"In addition," Congressman Brooks explained, "the Comptroller General will cooperate with the Director of the Bureau of the Budget in developing a uniform computer system to support the budget and appropriations cycle in the Legislative and Executive Branches of the Government.

Brooks, Chairman of the House Government Activities Subcommittee, also stated, "The state of the art in data processing and information handling has reached the point of development that they can be of material assistance to the Congress in coping with the constantly increasing complexity and volume of data inherent in the legislative process.

"The time has come for us to make full use of these new capabilities. In Congress every day we witness increasingly serious symptoms of the inadequacies of traditional information handling techniques to meet present and future demands."

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The manufacturer has announced the sale of over $10,000,000 worth of the units to Data Processing Financial & General Corp. and appears to be planning to sell in OEM-sized lots.

BCD also markets industry-compatible 9-channel tape drives designated the 1010, as OEM devices, for mini-computer and communications applications. The 1010s operate at 15K bytes per second, with a forward speed of 18-3/4 ips. The company will sell these in OEM quantity, with full drive and data electronics, for $2,700 per drive.

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Dear Mr. Watson:

TIME SHARE CORPORATION
HANOVER, NEW HAMPSHIRE 03755 • (603) 643-3640

Mr. Thomas J. Watson, Jr.
International Business Machines Corporation
Armonk, New York

Dear Mr. Watson:

Time Share Corporation fully concurs with IBM's statement regarding the vitality of the competition in the computer industry. We find it quite possible to compete effectively with your organization in the time-sharing marketplace.

The following brief comparison shows how a small, aggressive company of computer professionals can successfully provide an attractive alternative to your Cal/360 service.

	IBM	TSC
Hourly Rate, TT	$11/Hr.	$6/Hr.
CPU Time	$7/Min.	Free
User Storage Available	Yes	Yes
Application Programs	Yes	Yes
Customer Support	Yes	Yes
Customer Education	Yes	Yes
Guaranteed Access (on a 24-Hr., 7-Day-per-Week Basis)	No	Yes
Unlimited Use Plan	No	Yes

We look forward to competing with IBM in a free marketplace for a long, long time.

Sincerely,

TIME SHARE CORPORATION

TSC

TIME SHARE CORPORATION

Headquarters: Hanover, New Hampshire 03755 (603) 643-3640

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